

FIGURE 1

Murine Antibody 3B9 Light Chain
Native Signal Sequence and Variable Region

Nucleotide Sequence SEQ ID NO:1

Amino Acid Sequence SEQ ID NO:2

ATG GAG ACA GAC ACA ATC CTG CTA TGG GTG CTG CTG CTC	39
Met Glu Thr Asp Thr Ile Leu Leu Trp Val Leu Leu Leu	
1 5 10	
TGG GTT CCA GGC TCC ACT GGT GAC ATT GTG CTG ACC CAA	78
Trp Val Pro Gly Ser Thr Gly Asp Ile Val Leu Thr Gln	
15 20 25	
TCT CCA GCT TCT TTG GCT GTG TCT CTA GGG CAG AGG GCC	117
Ser Pro Ala Ser Leu Ala Val Ser Leu Gly Gln Arg Ala	
30 35	
ACC ATC TCC TGC AAG GCC AGC CAA AGT GTT GAT TAT GAT	156
Thr Ile Ser Cys Lys Ala Ser Gln Ser Val Asp Tyr Asp	
40 45 50	
GGT GAT AGT TAT ATG AAC TGG TAC CAA CAG AAA CCA GGA	195
Gly Asp Ser Tyr Met Asn Trp Tyr Gln Gln Lys Pro Gly	
55 60 65	
CAG CCA CCC AAA CTC CTC ATC TAT GCT GCA TCC AAT CTA	234
Gln Pro Pro Lys Leu Leu Ile Tyr Ala Ala Ser Asn Leu	
70 75	
GAA TCT GGG ATC CCA GCC AGG TTT AGT GGC AGT GGG TCT	273
Glu Ser Gly Ile Pro Ala Arg Phe Ser Gly Ser Gly Ser	
80 85 90	
GGG ACA GAC TTC ACC CTC AAC ATC CAT CCT GTG GAG GAG	312
Gly Thr Asp Phe Thr Leu Asn Ile His Pro Val Glu Glu	
95 100	
GAG GAT GCT GCA ACC TAT TAC TGT CAG CAA AGT AAT GAG	351
Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Ser Asn Glu	
105 110 115	
GAT CCT CCG ACG TTC GGT GGA GGC ACC AAG CTG GAA ATC	390
Asp Pro Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile	
120 125 130	
AAA CGG	396
Lys Arg	

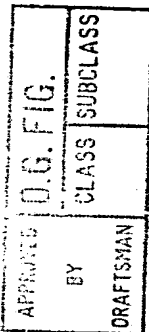


Figure 2

Murine Antibody 3B9 Heavy Chain
Native Signal Sequence and Variable Region

Nucleotide Sequence SEQ ID NO: 3

Amino Acid Sequence SEQ ID NO: 4

GAATTCGCGG	CCGCTATGCA	GGGACAATCA	GCAGCAGCAA	40
TGAGGAAGTA	AGCCTGTGCA	GAT	ATG AAC AGG CTT ACT TCC	81
			Met Asn Arg Leu Thr Ser	
			1 5	
TCA TTG CTG CTG CTG ATT GTC CCT GCA TAT GTC CTG TCC	120			
Ser Leu Leu Leu Leu Ile Val Pro Ala Tyr Val Leu Ser				
	10 15			
CAG GTT ACT CTG AAA GAG TCT GGC CCT GGG ATA TTG CAG	159			
Gln Val Thr Leu Lys Glu Ser Gly Pro Gly Ile Leu Gln				
	20 25 30			
CCC TCC CAG ACC CTC AGT CTG ACT TGT TCT TTC TCT GGG	198			
Pro Ser Gln Thr Leu Ser Leu Thr Cys Ser Phe Ser Gly				
	35 40 45			
TTT TCA CTG AGC ACT TCT GGT ATG GGT GTG AGC TGG ATT	237			
Phe Ser Leu Ser Thr Ser Gly Met Gly Val Ser Trp Ile				
	50 55			
CGT CAG CCT TCA GGA AAG GGT CTG GAG TGG CTG GCA CAC	276			
Arg Gln Pro Ser Gly Lys Gly Leu Glu Trp Leu Ala His				
	60 65 70			
ATT TAC TGG GAT GAT GAC AAG CGC TAT AAC CCA TCC CTG	315			
Ile Tyr Trp Asp Asp Asp Lys Arg Tyr Asn Pro Ser Leu				
	75 80			
AAG AGC CGG CTC ACA ATC TCC AAG GAT ACC TCC AGC AAC	354			
Lys Ser Arg Leu Thr Ile Ser Lys Asp Thr Ser Ser Asn				
	85 90 95			
CAG GTA TTC CTC AAG ATC ACC AGT GTG GAC ACT GCA GAT	393			
Gln Val Phe Leu Lys Ile Thr Ser Val Asp Thr Ala Asp				
	100 105 110			
ACT GCC ACA TAC TAC TGT GCT CGA AGA GAG ACT GTG TTC	432			
Thr Ala Thr Tyr Tyr Cys Ala Arg Arg Glu Thr Val Phe				
	115 120			

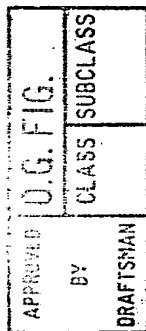


Figure 2 (con't)

TAC	TGG	TAC	TTC	GAT	GTC	TGG	GGC	GCA	GGG	ACC	ACG	GTC	471
<u>Tyr</u>	<u>Trp</u>	<u>Tyr</u>	<u>Phe</u>	<u>Asp</u>	<u>Val</u>	<u>Trp</u>	<u>Gly</u>	<u>Ala</u>	<u>Gly</u>	<u>Thr</u>	<u>Thr</u>	<u>Val</u>	
	125					130					135		
ACC	GTC	TCC	TCA										483
Thr	Val	Ser	Ser										
			140										

APPROVED BY DRAFTSMAN	U.G. FIG.	
	CLASS	SUBCLASS

FIGURE 3

Human/Murine 3B9 Chimeric Antibody Heavy Chain
Signal Sequence and Variable Region

Nucleotide Sequence SEQ ID NO: 9

Amino Acid Sequence SEQ ID NO:10

ATG	GTG	TTG	CAG	ACC	CAG	GTC	TTC	ATT	TCT	CTG	TTG	CTC	39
Met	Val	Leu	Gln	Thr	Gln	Val	Phe	Ile	Ser	Leu	Leu	Leu	
1				5					10				
TGG	ATC	TCT	GGT	GCC	TAC	GGG	CAG	GTT	ACC	CTG	AAA	GAG	78
Trp	Ile	Ser	Gly	Ala	Tyr	Gly	Gln	Val	Thr	Leu	Lys	Glu	
	15					20					25		
TCT	GGC	CCT	GGG	ATA	TTG	CAG	CCC	TCC	CAG	ACC	CTC	AGT	117
Ser	Gly	Pro	Gly	Ile	Leu	Gln	Pro	Ser	Gln	Thr	Leu	Ser	
			30				35						
CTG	ACT	TGT	TCT	TTC	TCT	GGG	TTT	TCA	CTG	AGC	ACT	TCT	156
Leu	Thr	Cys	Ser	Phe	Ser	Gly	Phe	Ser	Leu	Ser	<u>Thr</u>	<u>Ser</u>	
40					45					50			
GGT	ATG	GGT	GTG	AGC	TGG	ATT	CGT	CAG	CCT	TCA	GGA	AAG	195
<u>Gly</u>	<u>Met</u>	<u>Gly</u>	<u>Val</u>	<u>Ser</u>	Trp	Ile	Arg	Gln	Pro	Ser	Gly	Lys	
		55					60					65	
GGT	CTG	GAG	TGG	CTG	GCA	CAC	ATT	TAC	TGG	GAT	GAT	GAC	234
Gly	Leu	Glu	Trp	Leu	Ala	<u>His</u>	<u>Ile</u>	<u>Tyr</u>	<u>Trp</u>	<u>Asp</u>	<u>Asp</u>	<u>Asp</u>	
				70					75				
AAG	CGC	TAT	AAC	CCA	TCC	CTG	AAG	AGC	CGG	CTC	ACA	ATC	273
<u>Lys</u>	<u>Arg</u>	<u>Tyr</u>	<u>Asn</u>	<u>Pro</u>	<u>Ser</u>	<u>Leu</u>	<u>Lys</u>	<u>Ser</u>	Arg	Leu	Thr	Ile	
	80					85					90		
TCC	AAG	GAT	ACC	TCC	AGC	AAC	CAG	GTA	TTC	CTC	AAG	ATC	312
Ser	Lys	Asp	Thr	Ser	Ser	Asn	Gln	Val	Phe	Leu	Lys	Ile	
			95					100					
ACC	AGT	GTG	GAC	ACT	GCA	GAT	ACT	GCC	ACA	TAC	TAC	TGT	351
Thr	Ser	Val	Asp	Thr	Ala	Asp	Thr	Ala	Thr	Tyr	Tyr	Cys	
105					110					115			
GCT	CGA	AGA	GAG	ACT	GTG	TTC	TAC	TGG	TAC	TTC	GAT	GTC	390
Ala	Arg	<u>Arg</u>	<u>Glu</u>	<u>Thr</u>	<u>Val</u>	<u>Phe</u>	<u>Tyr</u>	<u>Trp</u>	<u>Tyr</u>	<u>Phe</u>	<u>Asp</u>	<u>Val</u>	
		120				125					130		
TGG	GGC	GCA	GGG	ACC	ACG	GTC	ACC	GTC	TCC	TCA			423
Trp	Gly	Ala	Gly	Thr	Thr	Val	Thr	Val	Ser	Ser			
				135					140				

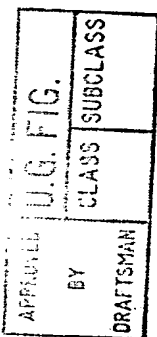


FIGURE 4

Humanized 3B9 Antibody Heavy Chain
Signal Sequence and Variable Region

Nucleotide Sequence SEQ ID NO: 11

Amino Acid Sequence SEQ ID NO: 12

ATG	GTG	TTG	CAG	ACC	CAG	GTC	TTC	ATT	TCT	CTG	TTG	CTC	39
Met	Val	Leu	Gln	Thr	Gln	Val	Phe	Ile	Ser	Leu	Leu	Leu	
1				5					10				
TGG	ATC	TCT	GGT	GCC	TAC	GGG	CAG	GTT	ACC	CTG	CGT	GAA	78
Trp	Ile	Ser	Gly	Ala	Tyr	Gly	Gln	Val	Thr	Leu	Arg	Glu	
15						20					25		
TCC	GGT	CCG	GCA	CTA	GTT	AAA	CCG	ACC	CAG	ACC	CTG	ACG	117
Ser	Gly	Pro	Ala	Leu	Val	Lys	Pro	Thr	Gln	Thr	Leu	Thr	
			30					35					
TTA	ACC	TGC	ACC	TTC	TCC	GGT	TTC	TCC	CTG	TCG	ACC	TCC	156
Leu	Thr	Cys	Thr	Phe	Ser	Gly	Phe	Ser	Leu	Ser	<u>Thr</u>	<u>Ser</u>	
40					45					50			
GGT	ATG	GGT	GTT	TCC	TGG	ATC	CGT	CAG	CCG	CCG	GGT	AAA	195
<u>Gly</u>	<u>Met</u>	<u>Gly</u>	<u>Val</u>	<u>Ser</u>	Trp	Ile	Arg	Gln	Pro	Pro	Gly	Lys	
	55						60					65	
GGT	CTA	GAA	TGG	CTG	GCT	CAC	ATC	TAC	TGG	GAC	GAC	GAC	234
Gly	Leu	Glu	Trp	Leu	Ala	<u>His</u>	<u>Ile</u>	<u>Tyr</u>	<u>Trp</u>	<u>Asp</u>	<u>Asp</u>	<u>Asp</u>	
				70				75					
AAA	CGT	TAC	AAC	CCG	AGC	CTG	AAA	TCC	CGT	CTG	ACC	ATA	273
<u>Lys</u>	<u>Arg</u>	<u>Tyr</u>	<u>Asn</u>	<u>Pro</u>	<u>Ser</u>	<u>Leu</u>	<u>Lys</u>	<u>Ser</u>	Arg	Leu	Thr	Ile	
	80					85					90		
TCC	AAA	GAC	ACC	TCC	CGT	AAC	CAG	GTT	GTT	CTG	ACC	ATG	312
Ser	Lys	Asp	Thr	Ser	Arg	Asn	Gln	Val	Val	Leu	Thr	Met	
			95					100					
ACT	AAC	ATG	GAC	CCG	GTT	GAC	ACC	GCT	ACC	TAC	TAC	TGC	351
Thr	Asn	Met	Asp	Pro	Val	Asp	Thr	Ala	Thr	Tyr	Tyr	Cys	
105					110					115			
GCT	CGA	CGC	GAA	ACC	GTT	TTC	TAC	TGG	TAC	TTC	GAC	GTT	390
Ala	Arg	<u>Arg</u>	<u>Glu</u>	<u>Thr</u>	<u>Val</u>	<u>Phe</u>	<u>Tyr</u>	<u>Trp</u>	<u>Tyr</u>	<u>Phe</u>	<u>Asp</u>	<u>Val</u>	
		120				125					130		
TGG	GGT	CGT	GGT	ACC	CCA	GTT	ACC	GTG	AGC	TCA			423
Trp	Gly	Arg	Gly	Thr	Pro	Val	Thr	Val	Ser	Ser			
			135					140					

FIGURE 5

Humanized 3B9 Antibody Light Chain
Signal Sequence and Variable Region

Nucleotide Sequence SEQ ID NO: 13

Amino Acid Sequence SEQ ID NO: 14

ATG	GGA	TGG	AGC	TGT	ATC	ATC	CTC	TTC	TTG	GTA	GCA	ACA	39
Met	Gly	Trp	Ser	Cys	Ile	Ile	Leu	Phe	Leu	Val	Ala	Thr	
1				5					10				
GCT	ACA	GGT	GTC	CAC	TCC	GAT	ATC	GTG	ATG	ACC	CAG	TCT	78
Ala	Thr	Gly	Val	His	Ser	Asp	Ile	Val	Met	Thr	Gln	Ser	
15					20						25		
CCA	GAC	TCG	CTA	GCT	GTG	TCT	CTG	GGC	GAG	AGG	GCC	ACC	117
Pro	Asp	Ser	Leu	Ala	Val	Ser	Leu	Gly	Glu	Arg	Ala	Thr	
			30					35					
ATC	AAC	TGC	AAG	GCC	TCC	CAA	AGT	GTT	GAT	TAT	GAT	GGT	156
Ile	Asn	Cys	Lys	Ala	Ser	Gln	Ser	Val	Asp	Tyr	Asp	Gly	
40				45					50				
GAT	AGT	TAT	ATG	AAC	TGG	TAT	CAG	CAG	AAA	CCC	GGG	CAG	195
Asp	Ser	Tyr	Met	Asn	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Gln	
		55					60				65		
CCT	CCT	AAG	TTG	CTC	ATT	TAC	GCT	GCA	TCC	AAT	CTA	GAA	234
Pro	Pro	Lys	Leu	Leu	Ile	Tyr	Ala	Ala	Ser	Asn	Leu	Glu	
			70						75				
TCT	GGG	GTA	CCT	GAC	CGA	TTC	AGT	GGC	AGC	GGG	TCT	GGG	273
Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	
80						85					90		
ACA	GAT	TTC	ACT	CTC	ACC	ATC	AGC	AGC	CTG	CAG	GCT	GAA	312
Thr	Asp	Phe	Thr	Leu	Thr	Ile	Ser	Ser	Leu	Gln	Ala	Glu	
			95						100				
GAT	GTG	GCA	GTA	TAC	TAC	TGT	CAG	CAA	AGT	AAT	GAG	GAT	351
Asp	Val	Ala	Val	Tyr	Tyr	Cys	Gln	Gln	Ser	Asn	Glu	Asp	
105					110					115			
CCT	CCG	AGG	TTC	GGC	GGA	GGG	ACC	AAG	GTG	GAG	ATC	AAA	390
Pro	Pro	Arg	Phe	Gly	Gly	Gly	Thr	Lys	Val	Glu	Ile	Lys	
		120					125					130	
CGT													393
Arg													

FIGURE 6A

Signal Sequence

Nucleotide SEQ ID NO:5

Amino Acid SEQ ID NO:6

ATG	GTG	TTG	CAG	ACC	CAG	GTC	TTC	ATT	TCT	CTG	TTG	CTC	39
Met	Val	Leu	Gln	Thr	Gln	Val	Phe	Ile	Ser	Leu	Leu	Leu	
1				5					10				

TGG	ATC	TCT	GGT	GCC	TAC								
Trp	Ile	Ser	Gly	Ala	Tyr								
	15												

APPROVED BY DRAFTSMAN	U.G. FIG.	CLASS	SUBCLASS

FIGURE 6B

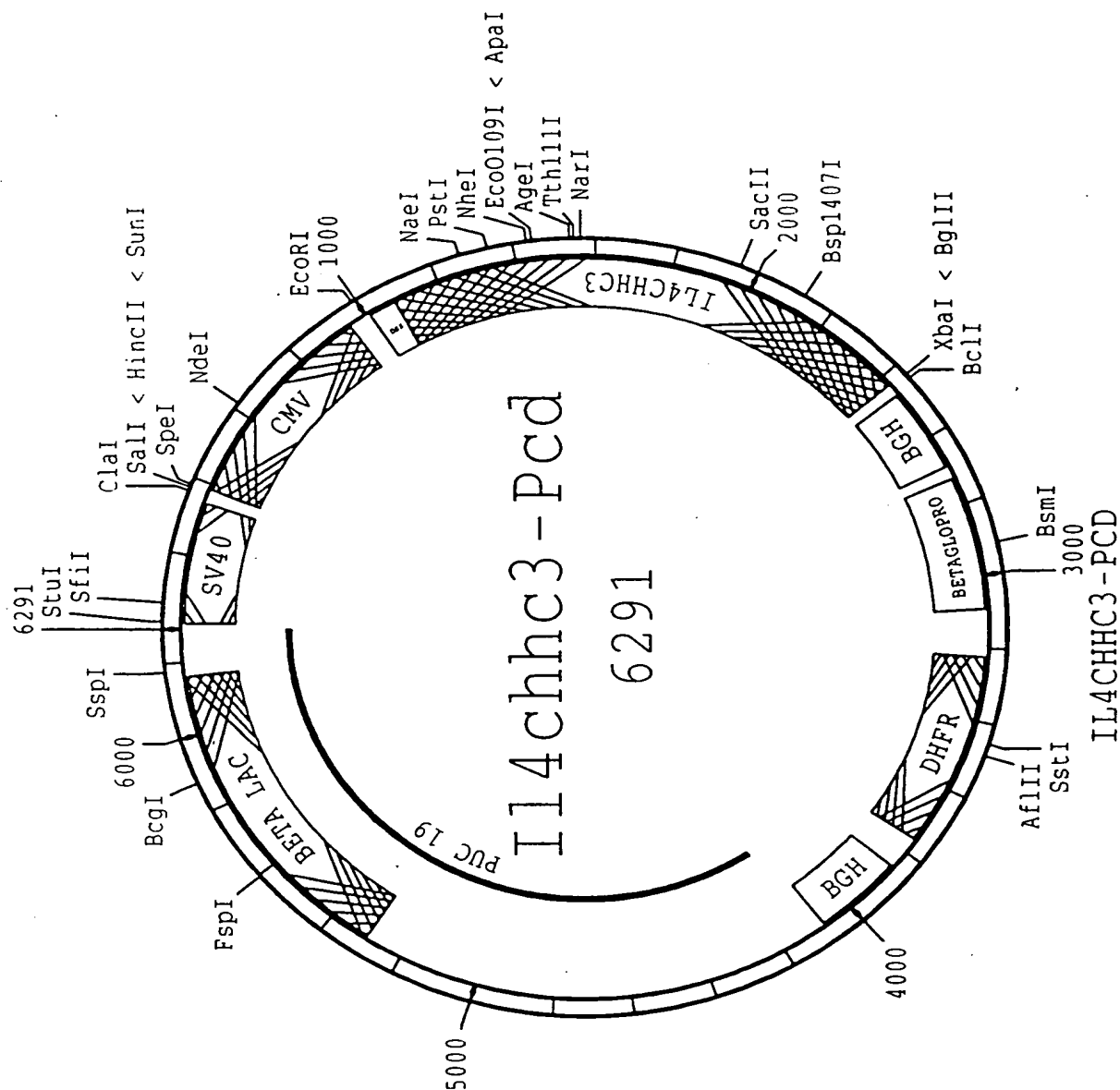
Signal Sequence

Nucleotide SEQ ID NO:7

Amino Acid SEQ ID NO:8

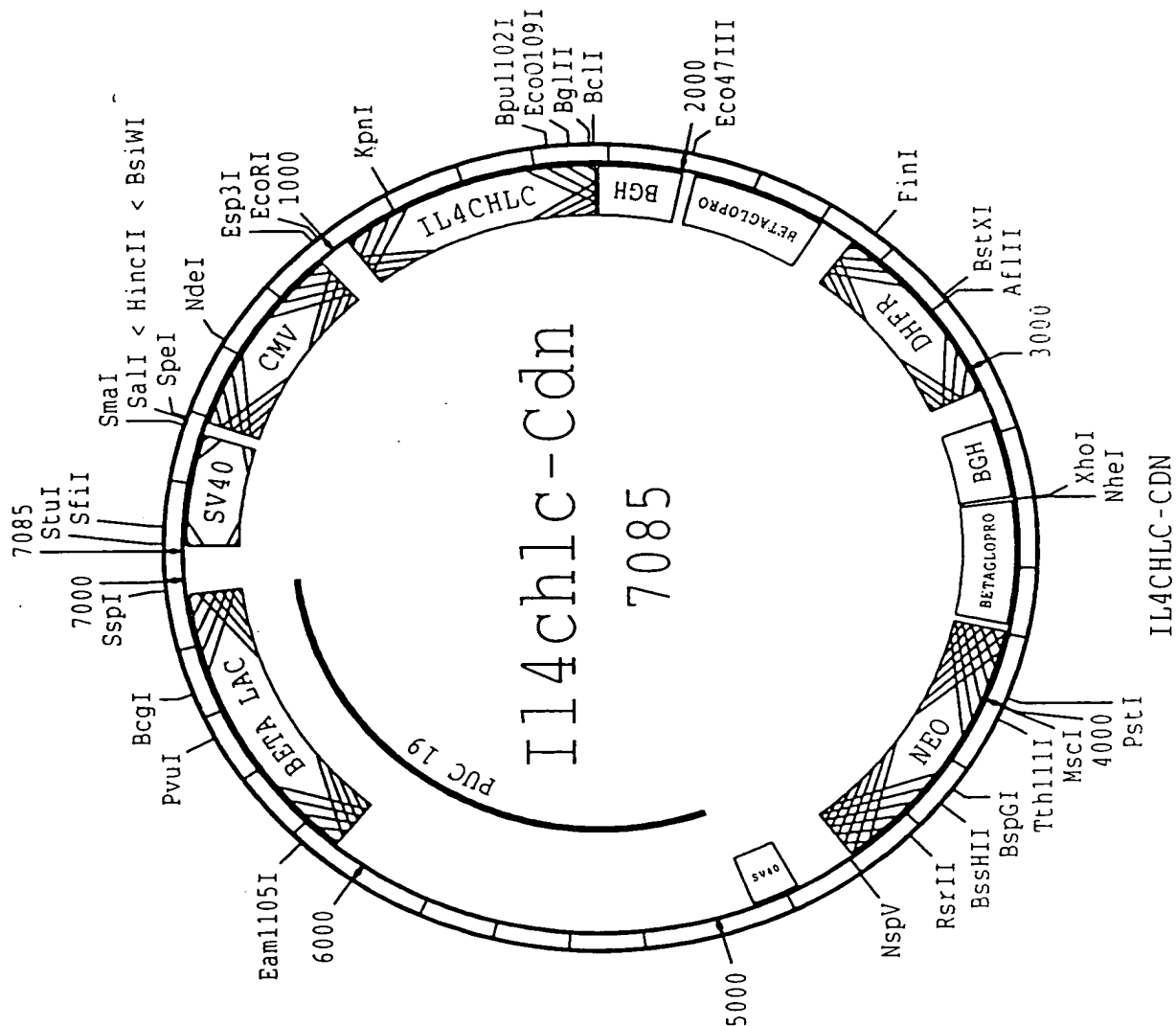
ATG	GGA	TGG	AGC	TGT	ATC	ATC	CTC	TTC	TTG	GTA	GCA	ACA	39
Met	Gly	Trp	Ser	Cys	Ile	Ile	Leu	Phe	Leu	Val	Ala	Thr	
1				5					10				

GCT	ACA	GGT	GTC	CAC	TCC	GAT	ATC	GTG	ATG	ACC	CAG	TCT	78
Ala	Thr	Gly	Val	His	Ser	Asp							
	15					20							

FIGURE 7

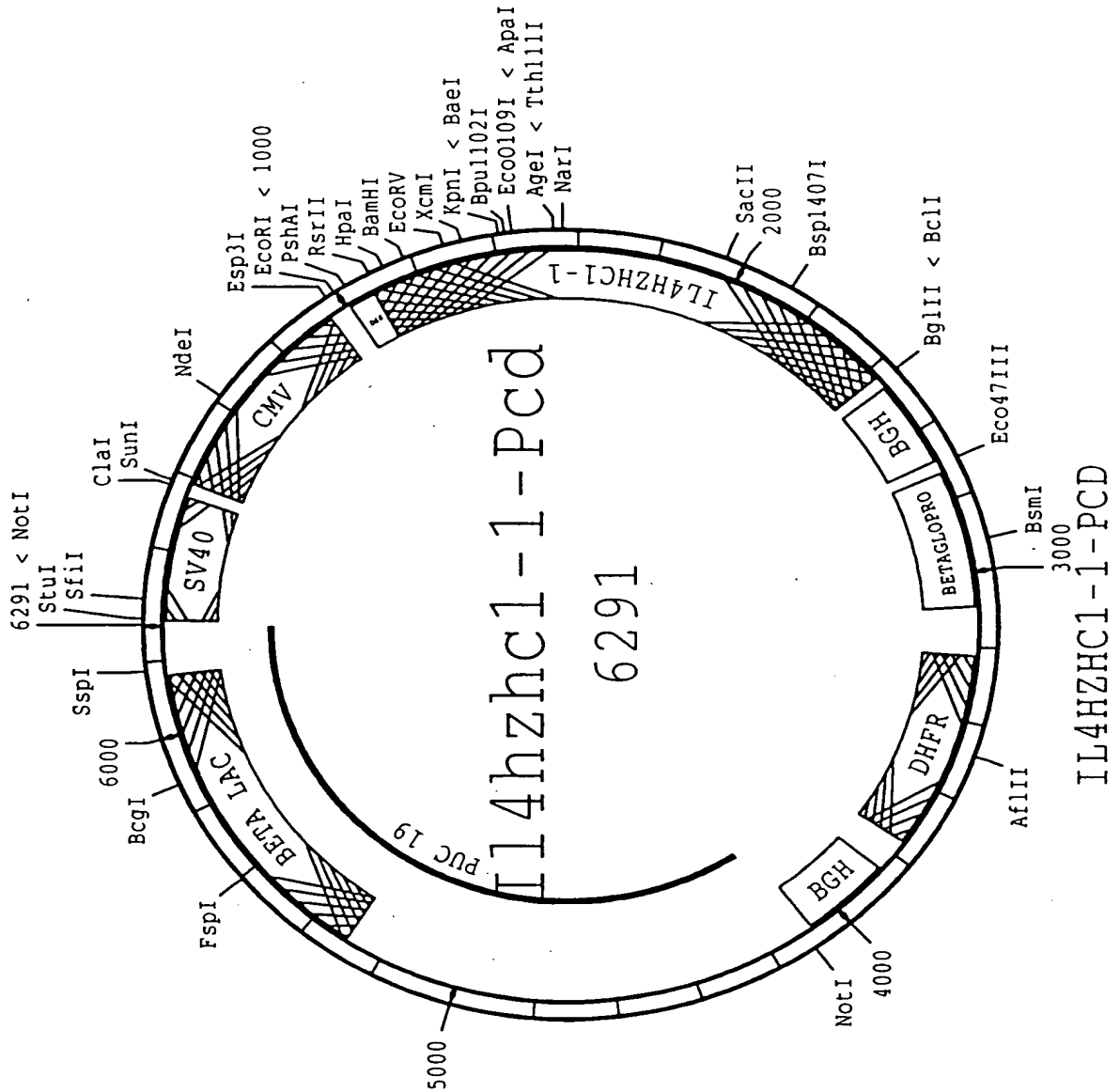
APPENDIX	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS

FIGURE 8



APPROVED	O.G. FIG.	CLASS	SUBCLASS
BY			
DRAFTSMAN			

FIGURE 9



APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

FIGURE 10

